

IMPROVED MAST FOR A FORK LIFTAbstract

One aspect of the present invention includes rail and carriage assembly combination that provides improved efficient operation. A rail is provided that has an inside surface that includes a straight back surface and an angled front surface. A carriage assembly is provided that includes upper rollers that are canted. Preferably the upper rollers are canted to match the angle of the angled front surface of the rail when a load is applied to the carriage assembly. As to fore/aft loads, the present invention provides a rail and carriage assembly design that causes the upper rollers of the carriage assembly to contact the front inside surface of the rail. As to offset loads, the present invention provides a rail and carriage assembly design that provides for, the rotation of the carriage assembly's rollers in the area of lateral contact caused by the offset load and the translation of the rail relative to the rollers in the area of lateral contact to be in the same direction when the carriage assembly is raised or lowered with an offset load. Another aspect of the present invention includes reducing the width of a portion of the inner rails to allow for integral stacking of the inner rails to minimize lost load of the mast thus minimizing the counterweight required on the body of the fork lift.